

### ***Remarks***

Upon entry of the foregoing amendments, claims 1, 15-49, 54-56, 62, 63 and 65-73 are pending in the application, with claims 1, 16, 17, 49, 55, 56, 63 and 67 being the independent claims. Claims 16, 17, 18, 24-27, 48, 49, and 67 are sought to be amended. New claims 69-73 are sought to be added. Claims 2-12, 50, 51 and 57-59 are sought to be cancelled by the current amendment without prejudice to or disclaimer of the subject matter therein. Claims 13-14, 52-53, 60-61, and 64 were cancelled by previous amendment. Claims 1, 15, 49, 54-56, 62, 63, 65 and 66 were withdrawn from further consideration as being drawn to a non-elected invention, there allegedly being no allowable generic or linking claim. (Office Action, at page 2, lines 18-20.)

Applicants wish to thank the Examiner for the helpful and courteous interview held on May 21, 2007 with Applicants' undersigned representative and Mr. John Covert. During the interview, the pending Office Action was discussed, as well as proposed claim amendments to further clarify Applicants' claimed invention. It was agreed that Applicants would submit the proposed claim amendments for the Examiner's consideration. Accordingly, Applicants submit herewith the proposed amendments.

Claim 16 has been amended to recite that  $x$  is  $NR^8$ ,  $-N(R^8)N(R^8)-$ , or  $-C(R^7R^7)NR^8$ , and  $y$  is  $C=O$ , and to recite that the oligomer backbone rings  $A_1$  and  $A_2$  are independently optionally substituted *o*-, *m*-, or *p*-phenylene or one of  $A_1$  and  $A_2$  is optionally substituted *o*-, *m*-, or *p*-phenylene and the other of  $A_1$  and  $A_2$  is optionally substituted heteroaryl. Claim 16 has also been amended to more clearly define the definition of  $R^1$  (ii), by replacing "aryl or heteroaryl" with "arylene or heteroarylene." Support for these amendments can be found in the specification as published (US

2006/0041023 A1), e.g., at page 19, paragraphs [0368] and [0369]. Claims 18, 24 and 25, which depend from claim 16, have been amended to conform to the amendments to claim 16, the base claim, and to correct claim dependency. Support for the amendments to claims 18, 24 and 25 also can be found in the specification, e.g., at page 19, paragraphs [0369] and [0370].

Claims 16, 17, 24, 26, 27, 48, 49, and 67 have also been amended to replace the word "group(s)" with "groups." Support for this amendment can be found in the specification as published (*i.e.*, US 2006/0041023 A1), e.g., at page 4, paragraph [0049], lines 6 and 10.

Withdrawn claim 49 has been amended to incorporate the same amendments made to claim 16. As claim 49 falls entirely within the scope of claim 16, Applicants respectfully request that the Examiner reconsider his previous decision to withdraw this claim from consideration and to instead examine it with claims 16-48 and 67-73. In light of the amendments to claim 16, Applicants also respectfully request that the Examiner reconsider his previous decision to withdraw claim 66 from consideration and to instead examine it with claims 16-48 and 67-73.

Claims 17 and 67 have been amended to incorporate all the elements of base claim 16 and any intervening claims and redrafted as independent claims, as suggested by the Examiner in the pending non-final Office Action, dated March 29, 2007. (Office Action, at page 5, lines 2-4.)

New claims 69-73 have been added. Support for new claim 69 can be found in claim 51 as originally filed. Support for new claims 70-73 can be found in the specification as published, e.g., at page 19, paragraphs [0368]-[0396].

These changes are believed to introduce no new matter and their entry is respectfully requested.

Based on the following remarks, Applicants respectfully request that the Examiner reconsider all outstanding rejections and objections and that they be withdrawn.

***I. The Double Patenting Rejection***

Claims 16, 18, 20-25, and 28-47 are rejected under the judicially created doctrine of obviousness-type double patenting as allegedly being unpatentable over claims 14-15, 26, and 29 of U.S. Pat. No. 7,173,102 B2 ("the '102 patent"). (Office Action, at page 3, lines 20-22.) Applicants respectfully traverse this rejection.

Specifically, the Examiner contends that although the allegedly conflicting claims are not identical, "they are not patentably distinct from each other because a method of killing microorganisms by contacting a surface with a compound of formula II is disclosed." (Office Action, at page 3, lines 22-24.)

Claims 16, 18, 20-25, and 28-47 of the current application are directed to a method of treating a microbial infection in an animal, the method comprising administering to the animal an effective amount of a pharmaceutical composition comprising an amphiphilic oligomer of Formula II and a pharmaceutically acceptable carrier or diluent. Thus, the claims are directed to pharmaceutical uses of the disclosed oligomers, *i.e.*, to methods of treating a microbial infection in which a pharmaceutical composition of one of the oligomers is administered to an animal, *e.g.*, administered parenterally as a solution to the animal to treat the microbial infection.

In contrast, the '102 patent describes the use of facially amphiphilic polymers and oligomers as surface-mediated biocidal agents. Claim 26 is directed to a method of killing microorganisms, the method comprising the steps of providing a substrate having disposed thereon a contact-killing, facially amphiphilic polymer or oligomer, including a polymer of claim 14, and placing the polymer or oligomer disposed thereon on the substrate in contact with a microorganism to allow formation of pore in the cell wall of the microorganism. Claim 29 is directed to a microbiocidal composition comprising a facially amphiphilic polymer or oligomer of the '102 patent and a solid support, e.g., wood, synthetic polymers, natural and synthetic fibers, cloth, paper rubber and glass.

Applicants submit that, contrary to the Examiner's statements, that claims 16, 18, 20-25, and 28-47 of the current application would not have been obvious in light of claims 14-15, 26, and 29 of the '102 patent, for at least the following reasons. The '102 patent claims are directed to the use of antimicrobial polymers and oligomers attached to surfaces that retain their ability to act as antimicrobial agents. A polymer or oligomer that functions as an antimicrobial agent, when attached to a surface such as wood or cloth, would not necessarily be expected to be effective in treating a microbial infection in an animal when administered to the animal (e.g., by parenteral injection of a pharmaceutical solution of the oligomer). Thus, the *in vivo* administration of a pharmaceutical composition of an antimicrobial oligomer to treat a microbial infection, as recited by claims 16, 18, 20-25, and 28-47 of the current application, would not be obvious in light of the *in vitro* use of the substrate-bound antimicrobial polymers as antimicrobial agents, as recited by the claims of the '102 patent.

Applicants believe that the rejection of 16, 18, 20-25, and 28-47 under the judicially created doctrine of obviousness-type double patenting has been overcome and respectfully request that the Examiner reconsider and withdraw the rejection.

## ***II. The Rejection of the Claims Under 35 U.S.C. § 102***

Claims 16, 18, 20-25, and 28-47 are rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by DeGrado *et al.*, U.S. Pat. No. 7,173,102 B2 ("the '102 patent"). (Office Action, at page 4, lines 12-13.) Applicants respectfully traverse this rejection.

As discussed above, claims 16, 18, 20-25, and 28-47 of the current application are directed to methods of treating a microbial infection in an animal in which a pharmaceutical composition of one of the oligomers is administered to the animal, e.g., injected parenterally as a solution into the animal to treat the microbial infection. See the specification as published (US 2006/0041023 A1), at page 45, paragraph [0792], to page 46, paragraph [0798], for examples of microbial disorders or diseases that may be treated using the claimed methods of the invention. Applicants' claims recite that the pharmaceutical composition comprising the oligomer is administered to an animal in need thereof.

In contrast, the '102 patent describes the use of facially amphiphilic polymers and oligomers as surface-mediated biocidal agents. In particular, the patent discloses that the polymers and oligomer may be attached to, applied on or incorporated into a number of substrates including, e.g., wood, paper, synthetic polymers, cloth, glasses, etc. ('102 patent, column 26, lines 47-63). The '102 patent also discloses that objects exposed to or susceptible to bacterial or microbial contamination can be treated with the polymers to

prevent microbial growth, including, e.g., contact lenses, sutures, catheters, dialysis membranes, water filters, carpets, and surgical gowns ('102 patent, at col. 27, lines 5-28), as well as paints, coatings, lacquer, varnish, grout, resins, films, cosmetics, soaps and detergents ('102 patent, at column 30, lines 18-22).

To anticipate Applicants' claims, the cited reference must disclose the invention of the claims, *i.e.*, it must teach or suggest each and every element of claims 16, 18, 20-25, and 28-47. The '102 patent fails to teach or suggest administering to an animal in need thereof a pharmaceutical composition comprising one of the disclosed oligomers to treat a microbial infection or condition. Because the '102 patent does not disclose every element of claims 16, 18, 20-25, and 28-47, it cannot anticipate these claims.

Applicants believe that the rejection of 16, 18, 20-25, and 28-47 under 35 U.S.C. § 102(c) has been overcome and respectfully request that the Examiner reconsider and withdraw the rejection.

### ***III. Claim Objections***

The Examiner objects to claims 17, 19, 26, 27, 48, and 67-68 as being dependent upon a rejected base claim, but states that these claims "would be allowable if rewritten in independent form including all the limitation of the base claim and any intervening claims." (Office Action, at page 5, lines 2-4.)

Applicants wish to thank the Examiner for his decision to consider allowable claims 17, 19, 26, 27, 48, and 67-68, if rewritten in independent form. Accordingly, Applicants have amended claims 17 and 67 by redrafting each claim to include the limitations of the base claim and any intervening claims, and to make each claim

independent. Because claim 67 has been redrafted as an independent claim, Applicants have not redrafted claim 68, allowing it to remain dependent upon claim 67. With respect to claims 19, 26, 27 and 48, Applicants have chosen not to redraft these claims as independent claims in view of claim 16 as it is currently presented.

Applicants believe that the objection to claims 17, 19, 26, 27, 48, and 67-68 has been overcome and respectfully request that the Examiner reconsider and withdraw the objection.

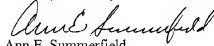
### ***Conclusion***

All of the stated grounds of rejection and objection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Reply is respectfully requested.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.



Ann E. Summerfield  
Attorney for Applicants  
Registration No. 47,982

Date: August 20, 2007

1100 New York Avenue, N.W.  
Washington, D.C. 20005-3934  
(202) 371-2600